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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,253	11/26/2003	Peter Monta	RGBM-001/01US	6062
23419	7590	10/14/2005	EXAMINER	
COOLEY GODWARD, LLP 3000 EL CAMINO REAL 5 PALO ALTO SQUARE PALO ALTO, CA 94306			HOANG, THAI D	
			ART UNIT	PAPER NUMBER
			2668	

DATE MAILED: 10/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/723,253	Applicant(s) MONTA ET AL.	
	Examiner Thai D. Hoang	Art Unit 2668	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed on 07/25/2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-30 and 32-40 is/are rejected.
- 7) ☒ Claim(s) 14 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

 **HANH NGUYEN**
PRIMARY EXAMINER

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-11, 15-20, 22-28, 32-36 and 38 are rejected under 35 U.S.C. 102(e) as being unpatentable by Ni, US Patent Application Publication No. 2002/0122387 A1.

Regarding claims 1, 4 and 22, as best understood, Ni discloses an algorithm for time based queuing in network traffic engineering. Ni discloses the switch 100 receives packets from a plurality of digital streams at input ports 105s, fig. 1, paragraphs [0007], [0019] (receiving packets for each of said plurality of digital streams)

A queuing module 125 of the switch 100 classifies each packet of the plurality of packets to determine the flow information of the packet for storing at the memory buffer 120, fig. 1, paragraphs [0007]-[0010], [0019] (associating each of said packets with a respective stream of said plurality of digital streams);

A time stamp 154 stamps the packet with an arrival time. The packet is classified into a flow, wherein the flow is determined based upon at least a class of service of the packet, assigning the packet to a queuing ring according to the flow of the packet. A flow control module controls a transmission rate of the packet from the output port

based upon the flow of the packet, paragraphs [0007]-[0010], [0019]. Furthermore, The switch contains a scheduling module 145 configured to schedule the transmission of the packet from the queue within a selected time interval before the transmission of a next outgoing packet, paragraph [0010] (assigning a priority to each packet, said priority being determined according to a delivery deadline for each of said packets; and processing the packets from the plurality of data streams in order of priority.)

Regarding claims 2 and 23, Ni discloses the incoming packets stored at the memory buffer 120, fig. 1, paragraph [0019], lines 6-7 (storing said received packets in a buffer)

Regarding claims 3 and 24, Ni discloses the switch includes a queuing module 125 configured to determine a flow of the packet, and to assign the packet in a queue based upon the flow of the packet, wherein the flow is determined based upon at least a class of service of the packet the switch contains a scheduling module 145 configured to schedule the transmission of the packet from the queue within a selected time interval before the transmission of a next outgoing packet, fig. 1, paragraph [0007]-[0010] (selecting said packets for processing based on said priority; and retrieving said selected packets from said buffer).

Regarding claims 5 and 25, Ni discloses a plurality of queues in the memory buffer 120, wherein each queue represents each class of service, fig. 1, paragraphs [0019]-[0022] (assigning a priority to each of said plurality of digital streams).

Regarding claims 6 and 26, Ni teaches the flow information may be classified based on information such as the class of service and the destination address for the

packet. The class of service may indicate whether the packet is a video, voice or a best effort packet, wherein voice packet and video packet have higher priority than best effort, paragraph [0019], [0047] (assigning of said priority to each packet further comprises determining the priority of the stream associated with each packet).

Regarding claims 7-8 and 27-28, Ni discloses a packet is transmitted within a selected time interval, paragraph [0010], [0028], and each packet is added a time stamp for monitoring and scheduling, paragraph [0047] (wherein said priority is based on a current time interval before said deadline, and wherein said deadline is derived from a Decoding Time Stamp extracted from a header of an associated access unit).

Regarding claims 9-11, Ni discloses the flow information may be classified and queued based on information such as the class of service and the destination address for the packet. The class of service may indicate whether the packet is a video, voice or a best effort packet, paragraphs [0019]-[0020], [0022], [0024], [0031] (wherein said packets of each digital stream are arranged in sequences of video packets and audio packets).

Regarding claims 15-16 and 32-33, Ni discloses the system calculates and monitors the status of the flows of the packets, paragraphs [0027-0028] (maintaining a state associated with each of said plurality of digital streams, wherein said state includes parameters for said processing said packets of each stream).

Regarding claims 17 and 34, Ni discloses the incoming packets are video packets, paragraphs [0019]-[0025] (wherein said state includes pixel data representing at least one frame of video).

Regarding claims 18 and 35, Ni discloses incoming packets are stored in the memory buffer 120, fig. 1, paragraph [0019] (allocating memory for storing said state).

Regarding claims 20 and 36, Ni discloses the packets stored in the memory buffer 120 should be constructed in fixed size or variable size, paragraphs [0019], [0021] (wherein a memory is allocated in pages, where each of said pages is a contiguous memory unit of a fixed size).

Regarding claim 38, Ni discloses when the packets are initially received at the input ports 105s, the queuing module 125 may retrieve a pointer from a link list and assign the pointer to each incoming packet or the cells of the packet. The assignment of the pointer from the link lists to an incoming packet may provide a link list addressing scheme which defines the storage location of the packet so that the packet may be retrieved and reassembled for transmission out of the output ports 110. It indicates that Ni's system perform a step of mapping a virtual address with a physical address of the packet stored in the memory buffer in order to pull up and transmit the packet, paragraphs [0021] (comprising a translation look-aside buffer for mapping virtual addresses to page addresses).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-13, 21, 29-30, 37 and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ni as shown above

Regarding claims 12-13 and 29-30, Ni teaches the flow information may be classified based on information such as the class of service. The class of service may indicate whether the packet is a video, voice or a best effort packet, wherein voice packet and video packet have higher priority than best effort packet, paragraph [0019], [0047]. Furthermore, Ni discloses when the packets are initially received at the input ports 105. The queuing module 125 may retrieve a pointer from a link list and assign the pointer to each incoming packet. The assignment of the pointer from the link lists to an incoming packet may provide a link list addressing scheme which defines the storage location of the packet so that the packet may be retrieved and reassembled for transmission out of the output ports 110, paragraph [0021-0022] (assigning a tag to each to each packet identifying the assigned priority for the packet and an address of the packet in the buffer; and storing each tag in a memory corresponding to the respective digital stream associated with each packet). Ni does not disclose the memory in the system is a FIFO memory. However, FIFO is well known in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use FIFO into Ni's system in order to control packets in a timely manner.

Regarding claims 21, 37 and 39, Ni does not disclose the system uses a free list to manage unallocated of space memory. However, the method of using a free list to manage unused space memory is well known in the art. It would have been obvious to

one of ordinary skill in the art at the time the invention was made to adapt the free list into Ni's system in order to optimize memory capacity.

Regarding claim 40, Ni does not disclose the system comprises a cache for storing one or more packets. However, cache is well known in the field of storage device and processor. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a cache into Ni's system in order to speed up the system since the time for retrieving packet for processing is reduced.

Allowable Subject Matter

Claims 14 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 07/25/2005 have been fully considered but they are not persuasive.

Page12, lines 13-15 of the remarks, Applicants argue, "Ni does not disclose or remotely suggest assigning a priority to each packet of a digital data stream, where the priority is determined according to a delivery deadline for each of said packets, as claimed by Applicants." Examiner respectfully disagrees. Applicants are directed to paragraphs [0007]-[0010], [0019] and figure 1, wherein the reference teaches the time stamp 154 stamps the packet with an arrival time packet. The packet is classified into a flow, wherein the flow is determined based upon at least a class of service of the packet, assigning the packet to a queuing ring according to the flow of the packet. A

flow control module controls a transmission rate of the packet from the output port based upon the flow of the packet. In addition, in paragraph [0010], the reference discloses “[T]he switch contains a scheduling module configured to schedule the transmission of the packet from the queue within a selected time interval before the transmission of a next outgoing packet”, and in paragraphs [0027] and [0028], the reference discloses a maximum time interval parameter (i_m) to process the flow of packets. Thus, the reference clearly teaches the feature as recited in claims 1 and 22.

Regarding claims 8 and 28, page13, lines 3-5 of the remarks, Applicants argue, “a time stamp added to a packet on receipt by the switch as in Ni is not equivalent to a decoding time stamp already present in a packet header associated with the packet”. Examiner respectfully disagrees. Ni discloses each packet is added a time stamp for monitoring and scheduling, paragraphs [0009-0010], and based on time stamped, the packet is transmitted within a selected time interval, paragraph [0010], [0028].

Page13, lines 12-13 of the remarks, Applicants argue, “Ni does not disclose or remotely suggest processing the packets from the plurality of data streams in order of priority.” Examiner respectfully disagrees. Ni discloses the switch includes a queuing module 125 configured to determine a flow of the packet, and to assign the packet in a queue based upon the flow of the packet, wherein the flow is determined based upon at least a class of service of the packet the switch contains a scheduling module 145 configured to schedule the transmission of the packet from the queue within a selected time interval before the transmission of a next outgoing packet, fig. 1, paragraph [0007]-[0010]. Furthermore, Ni discloses the class of service may indicate whether the packet

is a video, voice or a best effort packet, paragraphs [0019]-[0020], [0022]; wherein the voice packet and the video packet have higher priority than best effort, paragraph [0019]-[0020], [0047]. Thus, Ni clearly teaches the feature as recited in claims 1 and 22.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai D. Hoang whose telephone number is (571) 272-3184. The examiner can normally be reached on Monday-Friday 10:00am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Chieh can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2668

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thai Hoang

A handwritten signature in black ink, appearing to read 'H. Nguyen'.

HANH NGUYEN
PRIMARY EXAMINER